Isomerization-Induced Dynamic Heterogeneity in a Glass Former below and above Tg

Titre	Isomerization-Induced Dynamic Heterogeneity in a Glass Former below and above Tg
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Résumé en anglais	We report the first molecular dynamics simulations of the effect of the photoisomerization of probe molecules on the nonequilibrium dynamics of a glassy or supercooled molecular material. We show that the isomerization of the probe molecules creates a new mobile dynamic heterogeneity inside the matrix. Together with these induced cooperative motions, we find an important increase of the diffusion coefficient leading to liquidlike diffusion below the glass-transition temperature. This result could explain the massive mass transport that leads to surface relief grating formation in azobenzene containing amorphous materials. We find that the isomerization process controls the heterogeneity and the non-Gaussian parameter of the material, leading to extremely rapid variations of these quantities.
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